

Remarks/Arguments

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-4, 9-12, 15-16, 19 and 21 are pending in the application, with Claims 1, 2, 3, 6, and 8 amended by the present amendment, and Claims 5-8, 13-14, 17-18, 20, and 22-27 withdrawn from consideration.

In the outstanding Office Action, the restriction was made final; the abstract and drawings were objected to; Claim 2 was objected to; Claims 3 and 10 were rejected under 35 U.S.C. § 112, first paragraph; Claims 1-4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Pidgeon (U.S. Patent No. 5,153,763); and Claims 9-12, 15-16, 19, and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wright (U.S. Patent No. 5,841,468) in view of Pidgeon.

The abstract, specification, drawings, and Claims 2-3 and 10 are amended to correct the deficiencies noted in the Official Action. Claim 1 is amended to recite that the input optical path (170) is connected to one of a plurality of receiver nodes (103). Claim 1 is further amended to recite that the output optical path (215) connected to one of an array of head-end node receivers (243). Claims 6 and 8 are similarly amended. Support for these amendments is found in Applicants' original specification.¹ No new matter is added.

Applicants traverse the objection of Claim 2 and note that the frequency range in question was first recited in Applicants' originally filed Claim 2. Furthermore, the claimed frequency range is a subset of Applicants' disclosed frequency range.

Applicants acknowledge with appreciation the personal interview between the Examiner, the Examiner's supervisor, and Applicants' representative on April 21, 2004. The

¹ Specification, Figure 1.

Examiners acknowledged that further evidence was required to show that Pidgeon disclosed or suggested Applicants' claimed optical upconverter. The Examiners agreed to carefully reconsider Applicants' previously presented arguments regarding differences between the electrical upconverter of Pidgeon and Applicants' claimed optical upconverter. The Examiners also agreed to withdraw the finality of the present rejection if the present rejections are withdrawn.

Applicants acknowledge with appreciation the telephone call from the Examiner to Applicants' representative on May 6, 2004. During the telephone interview, the Examiner reported that he had further confirmed that Pidgeon does not disclose or suggest Applicant's claimed optical upconverter and that the outstanding rejection, and its finality, would be withdrawn.

Briefly recapitulating, amended Claim 1 is directed to an optical apparatus, comprising: an input optical path (170) connected to one of a plurality of receiver nodes (103) and carrying an input light beam modulated by an input carrier signal modulated by an information signal, the input carrier signal having a radio frequency; and an output optical path (215) connected to one of an array of head-end node receivers (243) and carrying an output light beam modulated by an output carrier signal modulated by the same information signal as the input carrier signal, the output carrier signal having a higher radio frequency than the input carrier signal. The optical apparatus also includes an optical upconverter means (180) for converting the input light beam into the output light beam. The optical converter means connects the input optical path (170) to said output optical path (215). With the optical upconverter, signals from multiple consumer nodes may be sent to a common head node with reduced distortion and improved performance.²

² Specification, page 25, line 26 – page 26, line 6.

Pidgeon discloses an optical CATV system configured to distribute cable TV signals from a head node to a plurality of consumer nodes. Pidgeon also discloses a distortion reduction system which has components placed on either end of a fiber cable.³ However, Pidgeon does not disclose or suggest Applicants' claimed "an input optical path (170) connected to one of a plurality of receiver nodes (103)" or Applicants' claimed "an output optical path (215) connected to one of an array of head-end node receivers (243)." Applicants first note that Pidgeon provides no feedback from the consumer nodes to the head node.

Furthermore, contrary to the Official Action, Applicants again note that the distortion system of Pidgeon is not equivalent to Applicants' claimed optical upconverter at least because the distortion system of Pidgeon converts *electrical-to-optical-to-electrical*. As known to one skilled in the art, Applicant's claimed optical upconverter converts *optical-to-electrical-to-optical*, where the frequency of the carrier signals associated with the optical signal output from the optical converter is higher than the frequency of the carrier signals associated with the optical signal input to the optical converter.⁴

Furthermore, Applicants' claims recite the optical upconverter in means-plus-function format. Applicants note that, when interpreting a means-plus-function claim under the broadest reasonable interpretation, the PTO may not disregard the structure disclosed in the specification corresponding to such language when rendering a patentability determination.⁵ Applicants therefore direct the Examiner's attention to Applicants' originally filed specification⁶ when considering Applicants' pending claims.

For each of these reasons, Applicants therefore traverse the finding that it would have been obvious to replace the *electrical-to-optical-to-electrical* converter of Pidgeon with

³ Pidgeon, column 4, lines 1-3 and Figures 2-3.

⁴ Specification, page 25, lines 3-25 and page 26, lines 7-18.

⁵ In re Donaldson, MPEP § 2181

Applicants' claimed optical upconverter and submit this finding constitutes an impermissible hindsight reconstruction of Applicants' invention. Furthermore, Applicants' submit that replacing the *electrical-to-optical-to-electrical* converter of Pidgeon with Applicants' claimed optical upconverter would render both Pidgeon inoperable and replacing Applicants' claimed optical upconverter with the *electrical-to-optical-to-electrical* converter of Pidgeon would render Applicants' claimed invention inoperable.

Applicants have also considered the Wright reference and submit that Wright does not cure the deficiencies of Pidgeon. Therefore, Applicants submit the inventions defined by Claim 1, and all claims depending therefrom, are not rendered obvious by the asserted prior art for at least the reasons stated above.⁷ For similar reasons, Applicants submit the inventions recited in independent Claims 6 and 8, and all claims depending therefrom, are also not rendered obvious by the asserted prior art. For similar reasons and in view of *In re Donaldson*, Applicants also submit independent Claim 19, and all claims depending therefrom, patentably define over the cited references.

The present amendment is submitted in accordance with 37 C.F.R. § 1.116 which permits amendments placing the claims in better form for consideration on appeal after final rejection. Since the present amendment clarifies the claimed invention, it is respectfully requested that 37 C.F.R. § 1.116 be liberally construed and the present amendment be entered.

⁶ Specification, page 24, line 28 – page 25, line 30; Figure 1.

⁷ MPEP § 2142 "...the prior art reference (or references when combined) must teach or suggest **all** the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)."

Accordingly, in view of the present amendment and in light of the previous discussion, Applicants respectfully submit that the present application is in condition for allowance and respectfully request an early and favorable action to that effect.

Respectfully submitted,

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